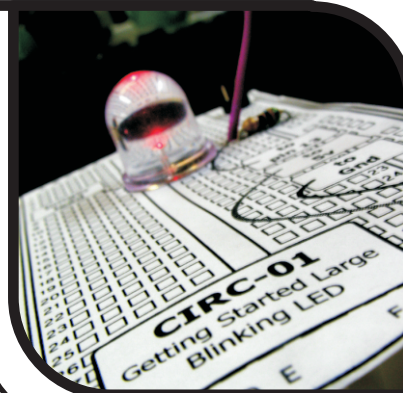


CIRC-01

.:Getting Started:. .:(Blinking LED):.



WHAT WE'RE DOING:

LEDs (light emitting diodes) are used in all sorts of clever things which is why we have included them in this kit. We will start off with something very simple, turning one on and off, repeatedly, producing a pleasant blinking effect. To get started, grab the parts listed below, pin the layout sheet to your breadboard and then plug everything in. Once the circuit is assembled you'll need to upload the program. To do this plug the Arduino board into your USB port. Then select the proper port in **Tools > Serial Port > (the comm port of your Arduino)**. Next upload the program by going to **File > Upload to I/O Board (ctrl+U)**. Finally, bask in the glory and possibility that controlling lights offers.

If you are having trouble uploading, a full trouble shooting guide can be found here: <http://ardx.org/TRBL>

THE CIRCUIT:

Parts:



**CIRC-01
Breadboard Sheet
x1**



**2 Pin Header
x4**



**10mm LED
x1**

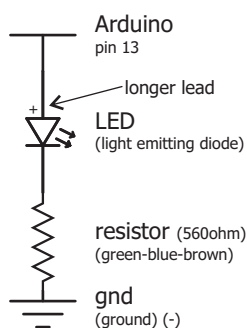


Wire



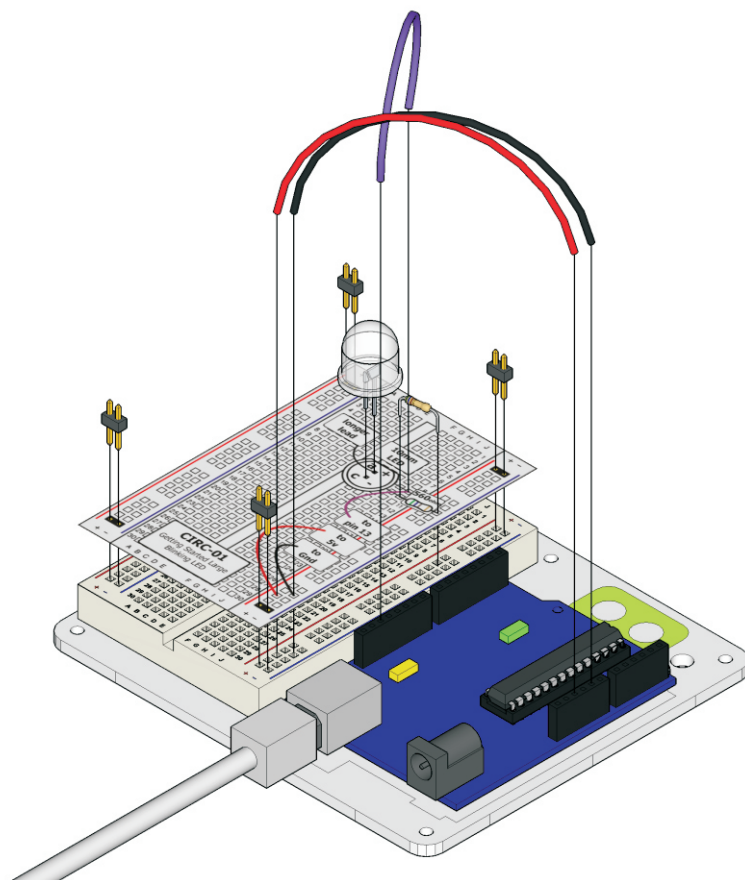
**560 Ohm Resistor
Green-Blue-Brown
x1**

Schematic



The Internet

.:download:.
breadboard layout sheet
<http://ardx.org/BBL01>
.:view:.
assembly video
<http://ardx.org/VIDE01>



CODE (no need to type everything in just click)**File > Examples > 1.Basic > Blink**

(example from the great arduino.cc site, check it out for other ideas)

```

/* Blink
 * Turns on an LED on for one second, then off for one second,
 * repeatedly.
 * Created 1 June 2005 By David Cuartielles
 * http://arduino.cc/en/Tutorial/Blink
 * based on an original by H. Barragan for the wiring i/o board
 */

int ledPin = 13;    // LED connected to digital pin 13

// The setup() method runs once, when the sketch starts
void setup() {       // initialize the digital pin as an output:
  pinMode(ledPin, OUTPUT); }

// the loop() method runs over and over again,
// as long as the Arduino has power
void loop() {
  digitalWrite(ledPin, HIGH); // set the LED on
  delay(1000);                // wait for a second
  digitalWrite(ledPin, LOW);  // set the LED off
  delay(1000);                // wait for a second
}

```

NOT WORKING? (3 things to try)**LED Not Lighting Up?**

LEDs will only work in one direction. Try taking it out and twisting it 180 degrees. (no need to worry, installing it backwards does no permanent harm).

Program Not Uploading

This happens sometimes, the most likely cause is a confused serial port, you can change this in **tools>serial port>**

Still No Success?

A broken circuit is no fun, send us an e-mail and we will get back to you as soon as we can.

help@oomlout.com

MAKING IT BETTER**Changing the pin:**

The LED is connected to pin 13 but we can use any of the Arduino's pins. To change it take the wire plugged into pin 13 and move it to a pin of your choice (from 0-13) (you can also use analog 0-5, analog 0 is 14...)

Then in the code change the line:

```
int ledPin = 13; -> int ledPin = newpin;
```

Then upload the sketch: (ctrl-u)

Change the blink time:

Unhappy with one second on one second off?

In the code change the lines:

```
digitalwrite(ledPin, HIGH);
delay(time on); //(seconds * 1000)
digitalwrite(ledPin, LOW);
delay(time off); //(seconds * 1000)
```

Control the brightness:

Along with digital (on/off) control the Arduino can control some pins in an analog (brightness) fashion. (more details on this in later circuits). To play around with it.

Change the LED to pin 9: (also change the wire)

```
ledPin = 13; -> int ledPin = 9;
```

Replace the code inside the { }'s of loop() with this:

```
analogwrite(ledPin, new number);
```

(new number) = any number between 0 and 255.

0 = off, 255 = on, in between = different brightness

Fading:

We will use another included example program. To open go to

File > Examples > 3.Analog > Fading

Then upload to your board and watch as the LED fades in and then out.

MORE, MORE, MORE:

More details, where to buy more parts, where to ask more questions:

<http://ardx.org/CIRC01>